



**Department of Energy**

**Ohio Field Office  
Fernald Area Office**

P. O. Box 538705  
Cincinnati, Ohio 45253-8705  
(513) 648-3155

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**JUL 17 1998**

**DOE-1015-98**

**Mr. James A. Saric, Remedial Project Manager  
U.S. Environmental Protection Agency  
Region V-SRF-5J  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590**

**Mr. Tom Schneider, Project Manager  
Ohio Environmental Protection Agency  
401 East 5<sup>th</sup> Street  
Dayton, Ohio 45402-2911**

**Dear Mr. Saric and Mr. Schneider:**

**TRANSMITTAL OF REVISED RESPONSES TO OHIO ENVIRONMENTAL PROTECTION  
AGENCY COMMENTS ON THE DRAFT FINAL REMEDIAL DESIGN DOCUMENTS  
PACKAGE - OPERABLE UNIT 1**

The purpose of this letter is to transmit revisions to the Department of Energy's (DOE) responses to Ohio Environmental Protection Agency (OEPA) comments #8 and #26 on the Operable Unit 1 (OU1) Remedial Design Documents Package for your review and approval. The original responses to these comments were transmitted to the EPAs, by letter dated June 4, 1998. The revisions to these comments reflect discussions held between the OEPA, Department of Energy, Fernald Environmental Management Project (DOE-FEMP), Fluor Daniel Fernald (FDF), and IT Corporation, in a meeting of July 2, 1998.

If you have any questions or comments, please contact Dave Lojek at (513) 648-3127.

Sincerely,

**Johnny W. Reising  
Fernald Remedial Action  
Project Manager**

**FEMP:Lojek**

**Enclosure: As Stated**

cc w/enc:

N. Hallein, EM-42, CLOV  
G. Jablonowski, USEPA-V, SRF-5J  
R. Beaumier, TPSS/DERR, OEPA-Columbus  
T. Schneider, OEPA-Dayton (3 copes total of enc.)  
F. Bell, ATSDR  
M. Schupe, HSI GeoTrans  
R. Vandergift, ODH  
F. Barker, Tetra Tech  
AR Coordinator

cc w/o enc:

J. Hall, DOE-FEMP  
A. Tanner, DOE-FEMP  
D. Carr, FDF/52-2  
R. Fellman, FDF/52-1  
T. Hagen, FDF/65-2  
J. Harmon, FDF/90  
R. Heck, FDF/2  
S. Hinnefeld, FDF/2  
EDC, FDF/52-7

Commenting Organization: Ohio EPA

Commentor: OFFO

Section #:

Page #:

Line #:

Code: c

Original General Comment #: 8

**Comment:** The IEMP Environmental Monitoring Status Report for Fourth Quarter 1997 reported (page 3-2) that four project-specific air monitors for the waste pit area were shut off. The text went on to state that future needs for project-specific monitoring would be evaluated, but the IEMP Report provides no timetable for this evaluation. Develop a project-specific air monitoring plan that addresses environmental impacts of the waste pit remediation. This plan should at a minimum include total particulate uranium (and other rads) concentrations at the four locations referred to in the IEMP. Additionally, radon monitoring should be performed at the WPRAP boundary.

**Response:** DOE acknowledges that the RDP does not contain provisions for environmental air monitoring in the immediate vicinity of OU1, beyond those already provided in the IEMP. DOE maintains the air monitoring network established in the IEMP provides adequate environmental monitoring for the implementation of the OU1 remediation. Specifically, the IEMP provides monitoring along the site fence line which is capable of detecting changes in emissions associated with all remediation activities on site, including emissions associated with the OU1 remediation. There will, however, be continuous point source air monitoring associated with the waste drying unit, which will be described in greater detail in the Sampling and Analysis Plan to be provided to the EPAs, by September 25, 1998, as a part of the RA Documents Package for review and approval.

In addition to the IEMP fence line monitoring, a significant amount of occupational monitoring will be conducted within the waste pits themselves. As described in the Pre-Operational Health and Safety Plan, occupational monitoring will be conducted within the waste pit area for radiological exposure. Specifically, there will be approximately five Pylon monitors placed around the pits and at the boundary for monitoring radon concentrations as well as personal radon monitors and other types of occupational air monitoring instruments. DOE will work with the regulators concerning the locations of these monitors. Project-specific decisions relative to worker PPE, stay times and contamination control will be based on analysis of this data. The use of this type of continuous occupational monitoring will enable the project to modify work practices in a timely manner and thereby limit airborne emissions. Further, as required by fugitive dust BAT requirements, visual monitoring will be conducted during operations to ensure that emissions control measures are being adequately implemented.

The IEMP and occupational air monitoring programs, in combination with the continuous point source air monitoring associated with the waste drying unit, allows for more than adequate monitoring to confirm regulatory compliance, public protection and worker protection.

The DOE recognizes, however, the enhanced concern of the OEPA related to monitoring air emissions associated with excavation of the waste pits and processing for shipment the waste materials. As such, DOE proposes to fund OEPA, under what is determined to be the most appropriate mechanism, to conduct ongoing monitoring activities (e.g., high volume (Hi-Vol) environmental air monitoring) at the waste pit boundary.

As a basis for forwarding this proposal, DOE has certain expectations related to the generation and use of data derived from these monitoring stations (i.e., the Hi-Vols).

More specifically, it is the expectation of the DOE that the data will not be used to make regulatory compliance determinations. This includes, but is not limited to, NESHAPs compliance and with requirements related to application of fugitive dust BAT. In addition, DOE views this proposal as being very specific to OU1, thus, this proposal does not in itself, establish a precedent for similar monitoring at other soil/waste excavation projects throughout the remainder for the FEMP site remediation.

Action: No action required.

Commenting Organization: Ohio EPA

Commentor: OFFO

Section #: 2.6

Page #: 11

Line #: 22 - 25

Code #: C

Original Comment #: 26

Comment: Carbon beds may be necessary for the removal of radon.

Response: Based on the air dispersion modelling, which is summarized in Attachment A to this comment response document, emissions of radon from the stack of the OU1 processing facility are expected to produce a maximum offsite annual average concentration at the FEMP fenceline of considerably less than 0.5pCi/liter above the background concentration. For the maximum emission of Rn-222 (estimated at about 0.013 Ci/hr) an off site (fenceline) concentration of about 0.002 pCi/l is predicted. This represents about 1/250 of the 0.5 pCi/liter level being applied. As such, the expected emissions from the stack are orders of magnitude below that which require control from the perspective of regulatory compliance. There will be continuous stack monitoring for radon, as discussed in the response to Ohio EPA Original Comment #37, that will confirm that the actual radon emissions rates will be as low as predicted, compared to regulatory compliance requirements. It should be noted that the 0.5 pCi/liter project standard is protective of the public.

Despite the fact that expected radon emissions rates are far below what would require application of active control techniques from a compliance perspective, DOE agrees that it is appropriate to evaluate the application of such technologies from an ALARA perspective. Two issues have been identified that call into question the appropriateness of including carbon for the removal of radon as driven by ALARA concerns. The first relates to worker protection. A comparison was made of the annual average offsite potential radiological dose rate to receptors at the fenceline, to the onsite dose to workers responsible for handling the carbon beds placed for radon removal. This comparison indicated that the dose from stack emissions (from Radon) at the fenceline for the uncontrolled case would be less than 0.5 mrem/year. The comparative onsite dose which could be received by workers the radon could be as much as 450 mrem/month for the same projected emission rate. This significant worker exposure potential does not appear to be offset by any meaningful decrease in potential public exposures.

In absence of a compelling reason to install radon control technology to the offgas treatment train, an exhaustive engineering examination of the operational impact of utilizing carbon beds has not been undertaken. Nevertheless, the installation of the carbon adsorption treatment technology into the offgas treatment train for the dryer system offers potentially significant operational difficulties. The second issue relates to these potential difficulties. The emissions from the dryers is expected to contain carbon monoxide, water vapor, both high and low carbon fraction organic volatiles as

well as particulates. While the processes of quenching, scrubbing, electrostatic precipitation and HEPA filtration are expected to reduce the high fraction volatiles and the particulates, the water vapor, carbon monoxide, the light fraction volatiles and possibly some portion of the high fraction volatiles would be carried over into the carbon beds. The expectation is that fouling of the carbon beds could occur and the passage of carbon monoxide and water vapor could render the carbon ineffective in removal of radon.

Some of these problems can be eliminated theoretically by the installation of the carbon beds downstream of the thermal oxidizer. The thermal oxidizer is expected to remove the organic loading and oxidize the carbon monoxide. However, the insertion of carbon adsorption at this point in the treatment train means that there needs to be a quench system installed downstream of the thermal oxidizer in order to cool the gas to a temperature accommodative of carbon beds. This would add another treatment device to the treatment train. This adds an additional waste stream, requiring treatment, that is of significant volume. In addition, there will still be water vapor in the gas stream and still a possibility of bed fouling.

The installation of radon control will most likely cause an increased opportunity for downtime of the offgas control system and will essentially compromise production scheduling and efficiency. In addition, if there are operational problems with the radon control system, there is increased likelihood that human interaction will be necessary to correct the problem and subject the workers to increased risk of exposure.

In conclusion, the fact that radon emissions rates are expected to be orders of magnitude lower than levels of regulatory and human health concern, coupled with operational and worker exposure issues associated with inclusion of carbon beds have led DOE to conclude that it is not appropriate to install this technology.

The conclusion to not include carbon treatment in the OU1 system will not affect the selection of treatment equipment in OU4, where the potential radon emissions are orders of magnitude higher than for OU1, and where it is fully expected that a radon control system will be employed. Preliminary analysis do not indicate the same types of operational concerns with carbon, as a radon control technology, in part because of significantly lower organics levels.

Action: No further action required.